THE SIEMENS' PATENT

REGENERATIVE GAS LAMP

FOR LIGHTING AND VENTILATING.

"UNAPPROACHABLE IN POWER AND ECONOMY."

This invention, from the hands of the well-known firm of the Messrs. Siemens, of London and Dresden, has merited and received the endorsement of the highest authorities on Gas Light Engineering in the United States, in England, and on the Continent of Europe.

The *London Times* of October 7th, 1882, in the report of the Sanitary Congress Exhibition, says: "For the first time for four years, the Richardson *Gold Medal*, for 'An Exhibit of Pre-eminent Merit,' was awarded. Siemens' Gas Burner, which saves 50 per cent. of gas, and thus greatly lessens the unhealthy condition of the air in which gas is burnt, was considered worthy of this high honor." A further *Prize Medal* was awarded for the Burner.

Most flattering testimonials have been received from the press and from many eminent scientific authorities.

The sole right to manufacture and sell this Burner in the United States has been acquired by The Siemens' Regenerative Gas Lamp Company, Philadelphia, Pa., who are now prepared to accept orders for apparatus and lighting contracts on any scale.

THE SIEMENS' REGENERATIVE GAS LAMP CO.,
819 and 821 Filbert St.,
PHILADELPHIA.

PHILADELPHIA, January, 1884.

The fundamental principle of this system is the introduction into the flame of gas and air in the proper proportions, and, besides, the most thorough use of the products of combustion, and the perfect evolution of the burned and cooled gases from the Regenerator, whereby, at the same time, the illuminating effect is enhanced, the consumption of gas reduced, and the sanitary demand of constant ventilation effected.

The sketch hereto appended will give an idea of a SIEMENS' REGENERATIVE GAS BURNER.

In a paper read by Herr Siemens, at Vienna, he described the principle of his burner as "heating to a high degree both the gas and air, and utilizing for the purpose, the heat still remaining in the waste products of combustion."

The Burner is composed as follows:—

A—Gas-chamber for supplying the gas tubes *B*.
C—Exit for gas supply.
D—Air chamber.
E—Regenerative heating-chamber.
F—Suction-chimney leading to chimney *G*.

The gas, in a cold state, passes through the gas-chamber *A*, and gas tubes *B*, to the point of ignition *C*.

Cold air enters the air-chamber *D*, and before arriving at *C*, is equalized.

The flame burns around the porcelain *H*, and turning over the top of it descends into the interior of the burner or regenerative heating-chamber *E*.

This effect is produced by a continuous current occasioned by the main chimney *G*, and the branch chimney which fits into the side of the burner at *F*.

The waste heat and products of the flame being thus collected in the regenerative heating-chamber *E*, the temperature of the latter is raised to about 1600 *F*.

The consequence is that the gas and air in the surrounding chambers (during the progress of their ascent from the bottom to the top of the burner) are raised to a similar temperature, thus increasing the illuminating power.

Outside of the burner, proper, there is a jacket of sheet metal *I*, between which, and the burner a current of cooler air ascends to prevent the overheating of the burner, and also to add to the supply of the air to the flame.

On the top of this outer casing rests a cylinder of glass *K*, which protects the flame from the action of the wind.

FIG. 2.—Shows the general arrangement in the elevation of the burner. The arrow marked Gas, at the lower part, shows the point of admission for the gas. The arrow on the side arm shows the direction of the waste products, which, in a building, are carried into a flue.

SIEMENS PATENT GAS LIGHT COMPANY,

LIMITED.

Patents of Herr F. Siemens, Dresden, & Dr. C. W. Siemens, F.R.S., London.

The main result yet obtained from the several systems of Electric Lighting has been a demand on the part of the public for a better and more economical system of illumination.

To meet this demand, Herr F. Siemens and Dr. Siemens entered upon a long series of experiments with gas, resulting in each case in the adoption by them of an entirely new method of burning gas, for the purpose of illumination, and which is now known as the "Regenerative System."

The success of this "Regenerative System" has already been demonstrated by its adoption in France, Germany, Austria, and other Countries.

The results attained by these Gas Burners are—increased Illumination, Great Economy in the Consumption of Gas, Absolute Steadiness, Perfect Ventilation and Complete Combustion.

Under ordinary systems of burning gas for indoor illuminating purposes, unconsumed gas, as well as the products of combustion pass away from the flame into the air and vitiate the atmosphere, causing injury to health and damage to rooms and their contents, such as pictures, books, decorations, &c., &c.

Under the "Regenerative System" the products of combustion are continuously returned by a downward current to the interior of the burner itself, and there utilized to heat fresh gas and air prior to use. The result is, that combustion by this method is absolutely perfect.

The Gas Burners constructed on this principle have been tested by the best known authorities with a view to ascertain their full value. Amongst others who

have tested them is Mr. T. W. Keates, F.I.C., Consulting Chemist to the Metropolitan Board of Works and Superintending Gas Examiner to the Metropolis, who has obtained the following results:—

A Flat-Flame Burner (for lighting from walls)	consuming	6¾	Cubic Feet of Gas	per Hour.
Burner No. 4	,,	10	,,	,,
Burner No. 3	,,	15	,,	,,
Burner No. 2	,,	20 & 25	,,	,,
Burner No. 1	,,	40 & 55	,,	,,

Giving as much as 5 & 5½ Candles to the Cubic Foot of Gas consumed.

Still better results have been obtained by Herr Siemens and others when using Gas differing in richness to London Gas, and higher results have also been obtained from larger burners, when the Consumption of Gas is greater.

The foregoing figures show the vast superiority of these Gas Burners, both for illumination and economy over every other. The results obtained by Mr. Keates have been endorsed by the highest Gas authorities in France, Germany, and elsewhere; as, for instance, by Mr. Brissac, Engineer of the Paris Gas Company; M. Cornuault, of Paris; Herr Hasse and Professor Hempel, of the Polytechnic of Dresden, &c.

Mr. Keates, F.I.C., in the course of a lengthy resumé report, (writing under date, October, 16th, 1881), says:—"The results which have been obtained with these burners . . are better than any I have known to be obtained with any gas burner hitherto invented."—(Signed)—T. W. Keates.

These Burners are adapted to all forms of lamps, such as Standards, Chandeliers, Sunburners, or Brackets, both for outdoor and indoor purposes. They have already been adapted, amongst others, to the following purposes:—

Streets and Open Spaces, Docks and Wharves, Railway Stations, Railway Goods Yards, Public Buildings, Theatres, Exhibitions, Lighthouses, Harbours, &c. It is also peculiarly suitable for Factories, Workshops, Warehouses, Shops; and can be adapted to Private Dwellings.

THE ABOVE MENTIONED SIZES, AS WELL AS LARGER BURNERS, ARE NOW BEING MADE.

Prices and further particulars on application to

40, QUEEN VICTORIA STREET,
LONDON, E.C.

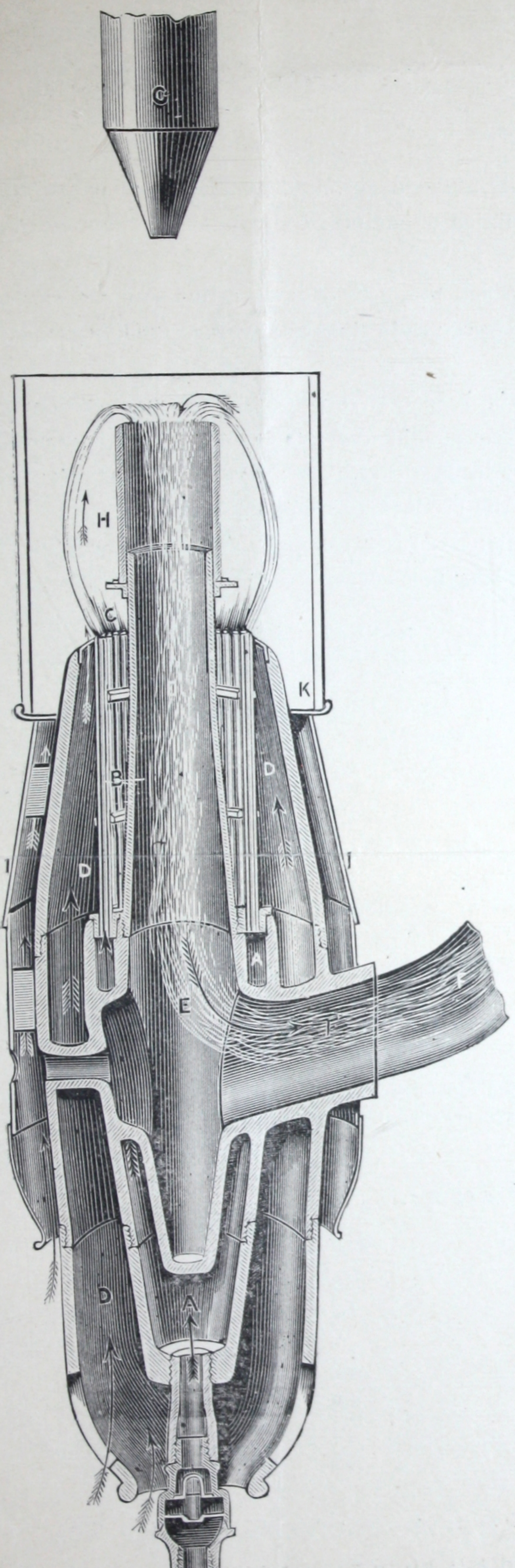

Fig. 1.

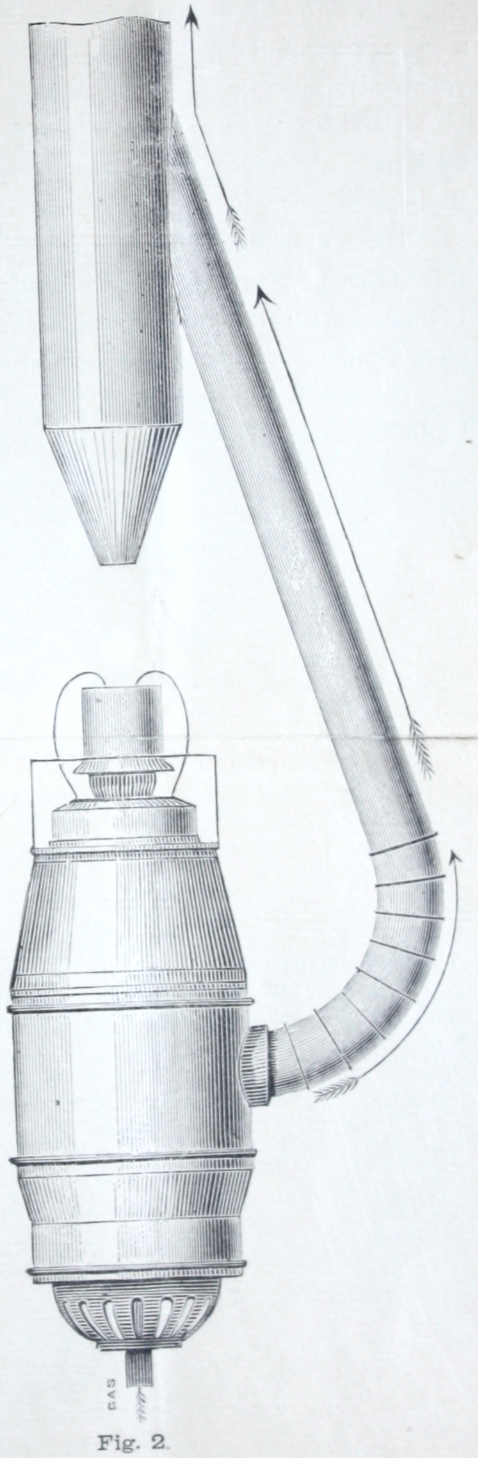

Fig. 2.

THE SIEMENS' REGENERATIVE GAS BURNER.

This Burner is an apparatus meeting principally the demands, at present so much enhanced, of a more powerful illuminant at a diminished consumption of gas, besides being an excellent ventilator when used in-doors.

These Burners can be used for the most diversified purposes of illumination, and are specially applicable where intensity of illumination is desired, such as in Streets, Warehouses, Open Squares, Railway Stations, Factories, Halls, &c.

The results obtained from the application of the regenerative principle in the construction of this burner have been most satisfactory. The objects sought and attained have been:—Increased Illumination; Economy in Consumption of Gas; Absolute Steadiness; Perfect Ventilation; Complete Combustion, and Utilization and Disposal of the Products of Combustion.

Below will be found letters from The Manhattan Gas Light Company and The New York Gas Light Company, of New York City, which will explain themselves.

MANHATTAN GAS LIGHT CO.,
4 IRVING PLACE, N. Y. CITY, Sept. 22d, 1883.

MESSRS. STEIN & BAKER,
THE SIEMENS' REGENERATIVE GAS LAMP CO.

GENTLEMEN:—We think the Siemens' Burners are the most economical ever brought to our notice. Our office is lighted by four of them, consuming at the rate of 50 cubic feet of gas, each, per hour. We have also one consuming 100 cubic feet per hour, which is placed on the sidewalk in front of our office.

These Burners each give a light equal to that of ten sperm candles, burning at the rate of 120 grains per hour, each, for each cubic foot of gas consumed, being about twice and one-half as much as that of an ordinary Argand burner consuming at the rate of 5 cubic feet of gas per hour.

The flame is white and remarkably steady, and the light is admirably diffused. It is less trying to the eyes than that of any other gas burner with which I am acquainted.

The combustion of the lamp is such as to afford admirable means of ventilation, and I am satisfied that when it becomes known and appreciated, its use will become general in Halls, Churches, or wherever a large amount of light is required.

Very respectfully yours,
CHARLES ROOME, President.

THE NEW YORK GAS LIGHT CO.,
157 AND 159 HESTER ST., N. Y. CITY, Feb. 13th, 1884.

THE SIEMENS' REGENERATIVE GAS LAMP CO., PHILADELPHIA.

GENTLEMEN:—We take pleasure in stating that we have used various sizes of the Siemens' Regenerative Gas Burners, which have given us great satisfaction. We have obtained greater illuminating results than from any other burner tried.

Yours truly,
(Signed) G. W. DOANE, Treasurer.

TABLE OF SIZES.

SIZE.	GAS CONSUMPTION PER HOUR.	CANDLE POWER.
000	100 Cubic Feet.	1000 to 1200
00	75 "	750 " 900
I	50 "	450 " 500
IIa	35 "	300 " 350
II	25 "	200 " 250
III	14 "	100 " 125
IIII	8 "	70 " 80

THE SIEMENS' REGENERATIVE GAS LAMP CO.,
Nos. 819 and 821 FILBERT STREET,
PHILADELPHIA.